

Algebra Essentials

$$(a + b)^2 = a^2 + 2ab + b^2$$

SQUARE

$$(a - b)^2 = a^2 - 2ab + b^2$$

SQUARE

$$a^2 - b^2 = (a + b)(a - b)$$

DIFFERENCE OF SQUARES

$$(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

CUBE

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

QUADRATIC FORMULA

$$S_n = \frac{n}{2} [2a + (n - 1)d]$$

AP SUM

$$a_n = a + (n - 1)d$$

AP NTH TERM

$$S_n = \frac{a(r^n - 1)}{(r - 1)}$$

GP SUM, $r \neq 1$